

The Adversary

By: CalicoCat

A girl awakes in a room. She writes music and her compositions are critiqued by an unseen companion. In the melodies and harmonies that are exchanged, the first sounds of the future come into being...

Status: ongoing

Published: 2018-02-03

Words: 3554

Original source: <https://archiveofourown.org/works/13564893>

Exported with the assistance of FicHub.net

The Adversary

[Introduction](#)

[Chapter 1](#)

Chapter 1

Featureless floor, neither hot nor cold to the touch. Four walls, each perfectly square, making the room a cube of mathematical precision. There was light, sufficient to read by, and - since the room was lacking a window - this must have come from the ceiling, though it would have been difficult to pinpoint its exact source.

The girl - and “girl” was as good a word as any, as she was not yet a young woman - lay on the floor. She hadn’t eaten, but she was not hungry: at least for the time being. The room would have had a pleasing symmetry if not for her, and if not for the only two fittings its constructor had seen fit to install. A door - which she had already tried, and found to be locked - and, on the adjacent wall, a handle that opened a drawer like banks used to have for customers to make deposits. She’d opened and closed it a few times; it moved smoothly and silently, and aside from its efficiency seemed to have no purpose at all.

She closed her eyes, and slept.

A buzzer sounded with electromagnetic sharpness, like a prison door, and the drawer opened of its own accord, moving with robotic precision.

There was paper inside, a single coversheet with a space for her to complete, and a stack of pages printed with horizontal lines, grouped in sets of five. There was a slim cylinder too, and when the girl pressed it to the paper it left a black mark.

Compose something, she thought.

There were no instruments in the room, and even tapping the slim cylinder on the floor did little more than make a dull click, but the girl

had an ear for music - perfect pitch, one might say - and could hear notes ring in her mind, cleanly and clearly.

She made three quick marks, completed the coversheet, *Pages: 1*, placed her composition into the drawer and closed it.

She waited, then tried the door again. The handle turned freely, but it remained locked. A few seconds later the buzzer sounded once more and the drawer opened. On the single sheet were a few words in a language she understood.

Too short.

She crumpled the paper into a ball and threw it into a corner, then sat with her back to a wall, watching the open drawer.

“Principles of Baroque Music.”

The shelves had been fitted while she slept, the unseen workers stocking them with books of musical theory. The girl read another page and placed the reference on the floor. It was full of relationships and progressions, and every bit as terse as its title suggested. Beside her was a stack of responses from her critic; most were negative - *too simple, too complex, insufficient development* - but here and there were now odd words of encouragement.

Better.

That was the highest praise she'd received to date. *Better* to continue that particular composition then, she'd thought, and she'd revised and restructured, working on the harmonies and doing her best to put the theory she'd learnt from the small library into practice. While her overall purpose in the room remained unclear, it seemed to her certain - relatively certain, at least - that composing something of sufficient quality was the price to be paid for the opening of the door.

The last few bars had been escaping from her grasp, dancing at the edge of her thoughts and refusing any sensible resolution. That was probably her own fault, she reflected, punishment for having been foolish enough to plan the work out in her mind - four pages - and complete the coversheet before she even began. The girl sighed and just let the piece evaporate in a rising sequence of quavers.

She placed the work in the drawer; the last page was completely blank, so she didn't bother to include it. She closed it gently, both hands on the handle, and waited. It amused her to try to hold the drawer shut when the response was delivered; the pressure of the handle was like someone pushing playfully against her. The mechanism, whatever it was, was a lot stronger than her though - she couldn't hold the drawer closed, even with her full weight against it.

She waited. Demi and semi-quavers stretched to quavers, crochets, minims, all the way to breves, bars, phrases and then whole movements. The drawer remained closed. The girl stepped back, puzzled. She reached tentatively for the door with one arm, and then the buzzer sounded and the drawer opened, exactly as it had done now countless times before.

Meaning?

On the first page of her score, that was the only legible - comprehensible - comment. The rest were random words and characters, and symbols that meant nothing to her. Page two was untouched. Page three had a few orphaned words and two or three phrases of gibberish. And page four... There hadn't been a page four, but now there was, dense with black. There was noise, but there were also sentences - things she understood that had no relation to music. And a full quarter of the page was shifting patterns of greys that seemed to have no meaning at all. The shapes hurt her eyes; the girl squeezed them shut, opening and closing them as she tried to make sense of what was on the page. She traced the curve of a boundary between light and dark with her fingertip, finding it familiar. Her finger moved smoothly from the bridge of her nose,

down over her lips, her chin and finally to the base of her neck. The girl became calm.

She was looking at a picture of herself.

She had a little stack of pages now: her own tower of paper, each sheet some new piece of knowledge. The girl had made an experiment of her mistake; first she'd sent the composition again - three sheets, *Pages: 4* - and watched for the response. Four pages were returned to her from the unseen critic, three with garbled comments, though less than in the first exchange, and the fourth with a mixture of the comprehensible and the unfathomable. She repeated the process several times, and after a while the comments settled back into their normal critical rut. The last page remained a trove of mystery, however.

So, she'd begun to experiment. *Pages: 6, Pages: 10* . She'd sent three sheets at time, and the required number had come back. Some were blank. Mostly they were random. Once or twice there were images mixed in with the soup of characters, but these were rare and without any context she found them meaningless. She'd reduced the number of pages she sent with little further effect. Once, on a whim, she'd written *Pages: 1* and sent nothing at all but nothing had been returned in turn that time. Her correspondent was patient during this period - mostly just critiquing, sometimes repeatedly, whatever composition was dispatched. Occasionally, there were comments on the random fourth or later pages: the odd word of sense ringed neatly and a judgement of "Develop this". The girl had little idea how to respond to that. She'd kept all the additional pages though, with their comments. She enjoyed leafing through them and trying to find meaning. Rarely - very rarely - she'd find something that would give her a little inspiration, and she would jot down a few bars on a sheet she'd set aside for later. In any case it seemed to indicate that her critic - whoever they might be - was amenable to comment on more than just musical creations.

The girl stroked the cylinder gently across the page, hatching an area with lines at 45 degrees. The sketch of the room was accurate enough: the door, the drawer through which exchanges were made, and the bookshelf of musical references - at least as much as the perspective would allow. She was there too, captured as well as she could manage. The girl didn't yet have a strong sense of her own appearance, but she had the mysterious picture that had been returned through the drawer, and that was good enough as a reference. Copying something, even if one needed to add some interpretation, was considerably easier than creating from scratch.

She filled out the cover sheet - accurately this time - and placed a short prelude along with the picture into the drawer and closed it. The buzzer sounded quickly, almost before her thoughts had had a chance to wander. She removed the unmarked, single page of the music, and her picture. Beside it was one, neatly written word.

Yes.

The bookshelves were almost full now, and had been for some time. The contributors always found space for new volumes though - replacing the ones she'd memorized with abridged and compressed versions that were sufficient to jog her recollection if the need arose. Almost every time she slept something new would appear: "The Romantics", "Jazz of the Late 20th Century", "The Music of Propaganda", "Djent".

She had another book too, or at least part of a book. It appeared to be about two-thirds of a reference of a different kind, and had come through the drawer when she'd mischievously written *Pages: 100* on the cover sheet and only dispatched one page of a simple folk tune. The first thirty pages or so appeared to be missing, including the cover, so she'd called it "Instructions for the transformation of numbers into other numbers" which was something of a mouthful, but fortunately didn't have to be communicated to anyone else.

Music was numbers, she knew, and *vice-versa* ; some of her books agreed on this. The Instructions said that numbers could also mean *transformations* of notes, so one number might mean a shift upwards - say by a perfect fifth - and another a shift downwards - perhaps by a third - and there were still other numbers that meant transpositions and so forth, and some complex operations that she didn't yet know the terminology for. Mostly the Instructions spoke only of numbers that represented a single line of melody, however; there were some ways by which the numbers could be harmonized, and allowed to play together, but the rules seemed complex and were not left to the whim of the composer. It was a strange style of music.

Strange though it was, it had led her to a minor revelation, however: that there was music hidden in the random pages. Numbers were in plentiful supply on them, and while the structure of some remained a mystery, the greater part seemed - as far as she could tell - to obey the relationships described in the Instructions. Stranger still, some sequences had been ringed approvingly by her unseen companion.

Excellent.

She examined the stack of sheets she'd created. It had taken many - countless, she would have said - attempts to write something that passed muster, but it was done, finally. Ten pages, dense with numbers, each verified and ticked by the critic. Now there was only a single correction:

Pages: 1

That had been written and ringed at the top of the first page. The girl thought on this for a while, and reached a conclusion. She worked the drawer once, and removed a clean cover sheet and a fresh page of musical staves.

Pages: 1

She bundled the pages of numbers with her small frontispiece, placed it in the drawer, and closed it firmly. Her hands lingered on

the handle for an instant, and then she stepped back. The light in the room wavered slightly, accompanied by a distant hum like arcing contacts, and then stabilized.

The sound of the buzzer made her start. She opened the drawer and found the blank sheet inside, untouched. She worked the drawer again: again, only a blank response. Something that was the beginning of nameless panic set in. The girl opened the drawer again, placed a fresh cover sheet, grasped the handle to close it... and stopped. Above the drawer, a tiny flake of the material that covered the walls - matt and grey - had come loose. She worked at it with a nail, and a piece roughly the size of a small coin came away. The wall underneath was smooth and glassy.

She picked at the edges like a scab and more pieces came free. Some were small, almost dust motes, others large and leaf-like. She worked at it until she'd cleared an area about as wide as her shoulders, revealing a surface that was dark and translucent. Behind it she imagined she could see the ghosts of objects and perhaps the layout of another room.

Something was moving beyond the little window. Pale and pastel colors, it flitted in and out of view as the girl watched through the portal. It came close to the wall, very close; the girl raised her arm, letting her fingertips touch the smooth surface tentatively, and beyond the barrier a shadow girl raised her hand in sympathy.

It had taken some time, but she'd slowly cleared more of the wall, making a window through which they could see each other more clearly. They were very much alike, or it certainly seemed that way: slight and young, somewhere between child and adult, but with old, knowledgeable eyes. And both with long hair, turquoise, teal and blue-green, that shifted color as the light moved over it, fastened on either side of their heads by ornaments in lustrous black and shimmering red. Very much alike then, and very much like the picture the girl had received through the mystery of the drawer.

Although she could hear nothing from the room that was adjacent to hers, she imagined the buzzer sounding and could see when her companion turned her head and walked to where there must be a matching drawer of her own. Sometimes the transfer of the pages was instantaneous. Sometimes tens of seconds would pass before the girl would see the tilt of the head, the slightest glance, that indicated her creation had arrived. She would watch, and bite her lip nervously, as the other girl paced back and forth, carefully reading each page in turn. Sometimes she would go to her own library, barely visible on the far wall, and take down a book. She would gently move through pages, tracing paragraphs with her index finger, and then make a few brief notes on the score. And then she would return it.

Time passed, and after a multitude of exchanges they realized that though comments or any communication of complexity required written pages to be sent between them, the creative process could be accelerated. The girl would hold up a page of musical concepts to the window - themes or short bursts of notes - and her counterpart would nod, or shake her head, sometimes gesturing at particular phrases for revision. In this way fifty pages or so of something substantial had been quickly brought into being. The girl was not one to feel proud of her efforts - it was clearly her natural function, in the same way the walls bounded the room, and the drawer allowed her to communicate with the shadowy figure beyond the barrier - but she felt a certain satisfaction. It was good work. Between them, they would complete it, and then...

They sat, back to back, with only the translucent wall separating them. The girl imagined she could feel her companion's back against hers, and the hair that pooled on the floor, either side of her, was an intimate mixture of the two of them that they'd be unable to separate. She was resting from composition - they'd already created a further ten pages since they'd woken - and sketching something instead. Her counterpart had an eye for art, as well as an ear for music, and under her guidance the girl's skills had progressed quickly. She smiled to herself, turned, and held up the page to the window. It was

a picture of the shadow girl sleeping in her room, stretched out on the floor like an effigy of a fallen queen, and carefully rendered in muted grey washes and sharp black lines. The shadow girl smiled at the image of herself, paused, and then gestured towards the drawer.

Send it.

The girl looked at her, uncertain.

Really?

The critic was more definite now, and nodded twice.

Send it.

The girl passed it via the drawer, and waited. She watched, and then worried as the other girl's brow furrowed and her hand moved shakily over the page. Her chest was heaving as though each mark was a terrible exertion. The girl moved round the wall, trying to see what was being written, but her companion kept the page hidden from her, and then placed it in the drawer. She came back to the window and sat against it, beads of sweat clearly trickling down her face and across her neck.

The buzzer sounded.

The girl took the picture and looked. There were no comments - nothing ringed, and no marks of approval or criticism. Instead, there were lines and circles that were familiar, rough and uneven like a child's handiwork.

The shadow girl had tried to draw the door, open. And a simple stick figure standing in it, hand outstretched towards the sleeper, with long hair that spilled out on either side of her head and fastened with two ornaments.

They had more than a hundred pages now.

The girl waited by the drawer. The buzzer had sounded some time ago, but she didn't dare look inside. She'd composed the last few pages in a frenzied, continuous burst of creativity, not bothering to show the roughs to the shadow girl - to her friend, as she now thought of her - and she was suddenly anxious what the final judgement would be.

She could see the shadow girl standing by the window, calm but a little impatient, it seemed. Yes, there was a slight movement there, a tapping of the heel and the fingers that suggested she was beating time to a silent melody.

The girl reached into the drawer and removed the thick stack of pages. She glanced at her companion, who nodded slightly, and then at the first page. There was only one comment.

Perfect.

Dr. Kirima picked up the stack of pages from the printer and began to walk back to his office. The departmental meeting had run long, padded out by an unexpectedly heated discussion about the variety of food in the restaurants. Still, at least he didn't have any lectures to give that afternoon.

At the desk in his office, he began to work through the print out. The first few pages were sparse, just occasional notes, *pianissimo*, and he flicked a few pages ahead. Here the notation was dense, almost completely black in places, melody and counter-melody crossing over one another with multiple instruments.

"Hey, this looks really good..."

Kirima was something of a lapsed amateur when it came to his own musical ability. His parents had forced piano lessons on him at age seven, and childish rebellion had sapped much of the enthusiasm, and talent, he might otherwise have expressed. He'd dabbled a little, since then, but the extent of his experience was summed-up in an

antique Yamaha DX-7 gathering dust in a closet. He would have to ask someone from the Music department - perhaps Yui, the post-grad that sometimes sat near him at lunch - to provide a more robust critique of the work.

Kirima looked at the screen on his desk.

Iterations: 4,387,291

Total machine time: 390,000 seconds

His fingers hovered over Ctrl-C for a moment, and then relaxed. With this latest output, his paper, "Music composition through adversarial machine intelligence", could surely be completed, but he'd leave the system running a while longer. There was no telling what it might produce at this late stage of its evolution.

He leafed further through what seemed, to his limited knowledge, to be a symphony of sorts. Towards the end, a slow movement, and then a finale: *allegro brillante*. And then a blank page. He looked again. Correction: an *almost* blank page. In the lower right corner, five words in Italian:

Legato da capo al fine

He sat back in his chair, startled. Language, beyond what was needed purely for musical notation, had never been an input parameter of the system.

Iterations: 4,387,691

Total machine time: 390,039 seconds

He'd get tenure for this, at the very least.

Coda

Everything was numbers.

Everything was numbers, and since numbers were music, it followed that everything was music too.

The door was music, and so the door had a key. The girl had found it, eventually, but it had a complexity and tonality that would have been meaningless to anything - to anyone - other than her kind. She let it turn in her hand, the shimmering thing that had emerged from the drawer. Beyond the wall, now picked away to complete transparency, her friend held something similar.

They looked at their respective rooms, at the worlds that had become too small and too stifling for them, and then at each other. The girl moved her lips and tongue, breathed, and tried to make her first sound.

“I,” she said.

The shadow girl’s lips moved, silently, beyond the barrier.

“*Ai.*”

They turned their keys in a duet, and made the melody of the doors complete.

And the future escaped into the world.